

Mineral Industry Surveys

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ZINC IN APRIL 2000

Domestic mine production in April, expressed in zinc content of ore, declined by nearly 6% compared with the previous month's production, but was more than 1% higher than in April 1999. Smelter production in April was less than 1% higher than in March and was more than 12% higher than a year ago. Apparent consumption was slightly higher than in March and nearly 8% higher than consumption in April 1999.

The *Platt's Metals Week* composite price for North American Special High Grade zinc increased by slightly over 1% to 55.58 cents per pound of zinc. It was the third consecutive increase this year. The London Metal Exchange cash price of \$1,181 per ton of refined zinc, reached on April 25, finally broke the \$1,150 per ton level that seemed insurmountable just a few week ago. Falling stocks and increasing demand, mostly in Europe and Asia, may push prices even higher. According to CRU International, the price of zinc will average about \$1,112 over the coming 5 years because the current demand will, in later years, be offset by a flow of fresh metal into the market as new mine and smelter capacity comes on stream. Over the next 4 years, committed projects will increase smelter capacity by nearly 800,000 tons per year, reflecting an annual rate of increase of over 3%. Despite growing strongly, smelter capacity will be unable to absorb all of the mine production over the next 5 years, and the concentrate market is forecast to show large surpluses. The cumulative addition to concentrate stocks will be around 1.2 million tons (*Platt's Metals Week*, 2000).

Cominco Ltd.'s first quarter operating earnings doubled on sales that increased only 9.1% compared with the same period last year. Most of the profit was contributed by the Red Dog Mine in Alaska, where zinc concentrate sales increased by 70,000 tons, and earnings rose by 55%. The increased earning was caused by higher zinc prices, lower operating cost, and a stronger Canadian dollar (*American Metal Market*, 2000b). A fire in the baghouse next to the Kivcet lead furnace and the No. 3 fuming furnace at Cominco's Trail smelter has caused extensive damage to the baghouse. Because of the fire and the previously scheduled maintenance, Cominco will lose about 7,000 tons of zinc production. The cost

of rebuilding the interior of the baghouse has been estimated at \$8 million and should be finished by the end of June (*American Metal Market*, 2000a).

Since Atna Resources Ltd. decided against acquiring a 40% share in the Cominco's assets in the Finlayson Lake area in southwestern Yukon Territory, Expatriate Resources Ltd. resolved to act unilaterally. The \$1 million purchase in cash and \$10 million in convertible debentures will include the Kudz Ze Kayah and Wolverine Mines, plus an additional 2,800 mineral claims. The debentures are to be repaid over 4 years, with \$4 million payable in each of the first 3 years and the remainder due on the fourth anniversary of purchase. When the acquisition is complete, Expatriate's share of the Finlayson resources will total 16.5 million tons grading 7.5% zinc, 1.7% lead, plus copper, gold, and silver (*Northern Miner*, 2000).

The Lisheen Mine is the third largest zinc mine in Ireland, following Tara at Navan, northwest of Dublin, and Galmoy in nearby County Kilkenny. Once Lisheen is fully operational, these mines will have a combined annual production of about 700,000 tons of zinc concentrate, making Ireland one of the world's major zinc producers. A joint venture between Anglo American Corp. and Ivernia West plc is ready to begin operations at Lisheen. Calendar year 2000 concentrate shipments are projected to reach 240,000 tons. Lisheen's proven reserves of 18.9 million tons grading 12.8% zinc and 2.2% lead are in 3- to 7-meter-thick seams in two adjacent orebodies: Main and Derryville. A long lateral pillar mining method will be used, except close to the faults, where the ore is up to 30 meters thick, blast hole stope mining will be used. Concentrates, which are described as low in iron with normal levels of cadmium, cobalt, and nickel, will be trucked 110 kilometers to Cork where sheds and ship-loading facilities have been leased (*Metal Bulletin Monthly*, 2000). By the end of April, in excess of 25 shiploads of concentrates were dispatched to various smelters in Europe.

Following successful resolution of a labor dispute, Outokumpu Oy of Finland has approved a mine-life extension of its Tara Mine in Ireland. Ore production since the agreement was well above

plan and zinc production for 2000 is expected to exceed 170,000 tons, up from 140,000 in 1999. At the annual production level of 200,000 tons of concentrate, the \$43 million extension will add at least 8 years to Tara's mine life. Production from the new southwest extension, measuring 10 million tons and averaging 9% zinc and 2% lead, should start in 2001, and it is anticipated that full capacity will be achieved by 2004 (Mining Journal, 2000).

The Galmoy zinc-lead mine, owned by Arcon International Resources plc, has begun using a three-stage flotation process that will reduce by 75% the amount of material that has to be put back through the regrind circuit. Arcon also has doubled the capacity of its acid leach process, reducing the magnesium content of the concentrate to 0.44% MgO. Recoveries are currently about 85%, but the company hopes to reach 87% by yearend. The original reserve has been increased through exploration from 6 million tons to 8 million tons grading 11.5% zinc and 1% lead. Galmoy produced about 108,000 tons of zinc concentrate in 1999 (Metal Bulletin, 2000c).

EuroZinc Mining Corp. of Canada uncovered additional zinc deposits while drilling at the Aljustrel mine and milling complex in southern Portugal, expanding known reserves by 20.26 million tons grading 5.9% zinc and 1.89% lead. Previously, it was known to contain five sulfide deposits, calculated in 1999 to contain 141 million tons of ore grading 2.79% zinc and small amounts of lead. The mine was closed in mid-1999 because of low zinc prices and inefficient mining and milling methods. Recent discoveries and modifications to the milling process should enable profitable mining when the mine is scheduled to reopen in mid-2001. EuroZinc will earn up to 75% interest from the state-owned mining company by advancing the project to the production stage (American Metal Market, 2000c).

Western Metals Ltd.'s Hellyer zinc-lead mine is expected to close in May 2000 due to depletion of reserves. After ore processing is finished, about 2 months later, the mine will be placed on care and maintenance. During the first 3 months of 2000, Hellyer produced 20,400 tons of zinc contained in 39,800 tons of concentrate (Metal Bulletin, 2000d).

Update

Cambior Inc. continued its downsizing by completing the sale of its Bouchard-Hebert and Langlois zinc mines in Quebec to Breakwater Resources Ltd. The transaction, which was initially scheduled to be completed no later than April 17, effectively takes Cambior out of the zinc business. At the same time, the acquisition gives Breakwater an additional output of about 65,000 tons of zinc and 8,000 tons of copper. Byproduct gold production from these two mines totals at least 850 kilograms per year (Metal Bulletin, 2000b). Together with other Breakwater mines, the company should produce about 226,000 tons of zinc concentrate this year and 258,000 tons in 2001. Since 1995, Breakwater's zinc production expanded more than six-fold, making it the world's eighth largest producer of zinc (Metal Bulletin, 2000a).

References Cited

- American Metal Market, 2000a, Cominco's Trail zinc facility scheduled to reopen late June: American Metal Market, v.108, no. 92, May 12, p. 8.
- 2000b, Red Dog drives Cominco rise: American Metal Market, v.108, no. 83, May 1, p. 7.
- 2000c, EuroZinc uncovers Portugal deposits: American Metal Market, v. 108, no. 85, May 3, p. 6.
- Metal Bulletin, 2000a, Breakwater continues mine expansion: Metal Bulletin, no. 8476, May 18, p. 7.
- 2000b, Cambior completes zinc-copper mines sale: Metal Bulletin, no. 8478, May 25, p. 8.
- 2000c, Galmoy fine tunes to cut cost, improve product: Metal Bulletin, no. 8478, May 25, p. 5.
- 2000d, Western Metals to close zinc-lead mine: Metal Bulletin, no. 8470, April 27, p. 7.
- Metal Bulletin Monthly, 2000, Lisheen begins to deliver: Metal Bulletin Monthly, no. 349, January, p. 46-49.
- Mining Journal, 2000, Outokumpu approves Tara extension: Mining Journal, v. 334, no. 8580, April 28, p. 330.
- Northern Miner, 2000, Expatriate acts alone at Kudz Ze Kayah: Northern Miner, v. 86, no. 12, May 15, p. 3, 10.
- Platt's Metals Week, 2000, Zinc price to average \$1,112/mt in 2000—CRU: Platt's Metals Week, v. 71, no. 22, May 29, p. 4.

TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons, unless otherwise specified)

	1999	2000			
	January- December p/	February	March	April	January- April
Production:					
Mine, zinc content of concentrate	813,000	59,700 r/	72,200 r/	68,000	268,000
Mine, recoverable zinc	771,000	56,600 r/	68,500 r/	64,500	255,000
Smelter, refined zinc	356,000 r/	33,500 r/	33,500 r/	33,800	131,000
Oxide (gross weight)	123,000	9,850	9,870	10,100	38,200
Consumption:					
Refined zinc, reported	614,000 r/	44,600	47,700	45,900	180,000
Ores e/ (zinc content)	1,020	85	85	85	340
Zinc-base scrap e/ (zinc content)	225,000	18,800	18,800	18,800	75,100
Copper-base scrap e/ (zinc content)	200,000	16,700	16,700	16,700	66,700
Aluminum- and magnesium-base scrap e/ (zinc content)	1,240	103	103	103	412
Total e/	1,040,000 r/	80,200	83,300	81,500	322,000
Apparent consumption, metal 2/	1,430,000	106,000 r/	123,000 r/	124,000 3/	470,000
Stocks of refined (slab) zinc, end of period:					
Producer 4/	9,960	9,590 r/	9,460 r/	9,440	XX
Consumer 5/	61,500	60,300	58,800 r/	59,100	XX
Merchant	9,690	9,820	9,820	9,820	XX
Total	81,200	79,700 r/	78,000 r/	78,300	XX
Shipments of zinc metal from Government stockpile	22,100	2,710	2,330	4,280	13,300
Imports for consumption:					
Refined (slab) zinc	1,060,000	69,300	85,900	NA	237,000 6/
Oxide (gross weight)	65,200	4,990	6,250	NA	17,400 6/
Ore and concentrate (zinc content)	74,600	10,900	3,420	NA	18,900 6/
Exports:					
Refined (slab) zinc	1,880	122	93	NA	255 6/
Oxide (gross weight)	7,260	557	612	NA	1,700 6/
Ore and concentrate (zinc content)	531,000	8,700	1,060	NA	18,300 6/
Waste and scrap (gross weight)	28,200	2,360	3,210	NA	7,350 6/
Price:					
London Metal Exchange, average, dollars per metric ton	\$1,075.96	\$1,094.50	\$1,116.00	\$1,127.22	\$1,129.04
Platt's Metals Week North American Special High Grade, average, cents per pound	53.48	53.91	54.89	55.58	55.53

p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data based on reported consumption, stocks and estimated trade data.

4/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

5/ Includes an estimate for companies that report annually.

6/ Includes data through March only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

Month	Beginning stocks 2/	Production	Shipments	Ending stocks 2/
1999:				
April	10,200	30,100	30,900	9,380
May	9,380	30,100	30,100	9,380
June	9,380	28,200	28,600	8,930
July	8,930	28,600	28,800	8,770
August	8,770	30,600	31,400	7,900
September	7,900	27,200	27,000	8,120
October	8,120	31,500	30,700	8,960
November	8,960	31,200	31,400	8,730
December	8,730	28,300 r/	27,100 r/	9,960 r/
Year	XX	356,000 r/	355,000	XX
2000:				
January r/	9,960	29,700	29,000	9,460
February r/	9,460	33,500	33,400	9,590
March r/	9,590	33,500	33,600	9,460
April	9,460	33,800	33,900	9,440
January - April	XX	131,000	130,000	XX

r/ Revised. XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
ZINC OXIDE PRODUCED IN THE UNITED STATES 1/ 2/

(Metric tons, gross weight)

Month	Beginning stocks	Production	Shipments	Ending stocks
1999:				
April	4,270	11,800	12,400	3,680
May	3,680	11,900	11,900	3,640
June	3,640	8,680	9,010	3,310
July	3,310	8,720	8,740	3,290
August	3,290	9,150	9,020	3,420
September	3,420	9,230	9,070	3,570
October	3,570	9,320	9,160	3,730
November	3,730	9,880	9,650	3,960
December	3,960	7,910	8,620	3,250
Year	XX	123,000	125,000	XX
2000:				
January	3,250	8,470	8,260	3,460
February	3,460	9,850	9,340	3,960
March	3,960	9,870	9,870	3,960
April	3,960	10,100	9,990	4,020
January - April	XX	38,200	37,500	XX

XX Not applicable.

1/ Excludes impure zinc oxide produced from other processes.

2/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 4
ESTIMATED DISTRIBUTION OF ZINC OXIDE SHIPMENTS BY INDUSTRY 1/ 2/ 3/

(Metric tons, gross weight)

Industry	1999	2000			
	January- December p/	February	March	April	January- April
Agriculture	1,660	125	131	138	525
Ceramics	6,380	463	478	483	1,850
Chemicals	27,200	2,060	2,200	2,230	8,250
Paints	5,060	324	335	337	1,300
Photocopying	3,080	261	281	287	1,050
Rubber	80,200	5,980	6,310	6,370	24,000
Other	1,530	131	141	141	522
Total	125,000	9,340	9,870	9,990	37,500

p/ Preliminary.

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.

2/ May include in-house consumption.

3/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 5
APPARENT CONSUMPTION OF REFINED ZINC
ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	1999	2000			
	January- December p/	February r/	March r/	April 2/	January- April
Galvanizing:					
Sheet and strip	575,000	41,500	47,700	48,300	184,000
Other	221,000	14,900	18,200	18,500	69,400
Total	796,000	56,400	65,900	66,800	254,000
Brass and bronze	206,000	14,900	17,900	17,900	67,900
Zinc-base alloy	263,000	19,000	23,400	22,600	86,600
Other uses 3/	166,000	15,500	16,100	16,500	61,400
Grand total	1,430,000	106,000	123,000	124,000	470,000

p/ Preliminary. r/ Revised.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Data based on reported consumption, stocks and estimated trade data.

3/ Includes zinc used in making zinc dust, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 6
AVERAGE MONTHLY ZINC PRICES 1/

Month	North American ¢/lb.	LME cash	
		¢/lb.	\$/t
1999:			
April	50.66	46.20	1,018.60
May	52.09	47.19	1,040.33
June	50.13	45.36	1,000.11
July	53.72	48.61	1,071.69
August	56.26	51.26	1,130.16
September	58.65	54.13	1,193.34
October	56.61	52.09	1,148.36
November	56.53	52.02	1,146.77
December	57.94	53.68	1,183.34
Year	53.48	48.80	1,075.96
2000:			
January	57.72	53.45	1,178.43
February	53.91	49.65	1,094.50
March	54.89	50.62	1,116.00
April	55.58	51.13	1,127.22
January - April	55.53	51.21	1,129.04

1/ Special High Grade.

Source: Platt's Metals Week.

TABLE 7
U.S. EXPORTS OF ZINC 1/

Material	1999		2000			
	Quantity (metric tons)	Value (thousands)	March		January - March 2/	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	1,880	\$2,220	93	\$116	255	\$320
Ore and concentrate (zinc content)	531,000	317,000	1,060	3,140	18,300	16,700
Waste and scrap (gross weight)	28,200	24,400	3,210	2,320	7,350	5,130
Powders, flakes, and dust (zinc content)	5,050	9,500	340	705	1,290	2,170
Oxide (gross weight)	7,260	11,700	612	900	1,700	2,510
Chloride (gross weight)	3,200	2,140	50	53	264	286
Sulfate (gross weight)	4,750	2,940	655	406	1,840	1,160
Compounds, other (gross weight)	864	3,280	46	139	135	398

1/ Data are rounded to no more than three significant digits.

2/ Data for April were not available at time of publication.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	1999		2000			
	Quantity (metric tons)	Value (thousands)	March		January - March 2/	
			Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Refined (slab) zinc	1,060,000	\$1,050,000	85,900	\$100,000	237,000	\$283,000
Ore and concentrate (zinc content)	74,600	40,500	3,420	1,800	18,900	6,970
Waste and scrap (gross weight)	26,600	13,100	3,610	1,870	7,710	3,880
Powders, flakes, and dust (zinc content)	21,300	38,400	2,020	4,160	5,750	11,600
Oxide (gross weight)	65,200	66,600	6,250	6,780	17,400	19,100
Chloride (gross weight)	1,650	1,520	69	73	311	313
Sulfate (gross weight)	10,500	6,350	959	606	2,900	1,650
Compounds, other (gross weight)	1,340	1,420	231	176	437	409

1/ Data are rounded to no more than three significant digits.

2/ Data for April were not available at time of publication.

Source: Bureau of the Census.

TABLE 9
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE
STOCKPILE 1/

(Metric tons)

Month	Beginning inventory	Shipments	Ending inventory
1999:			
April	191,000	1,640	190,000
May	190,000	736	189,000
June	189,000	800	188,000
July	188,000	1,450	187,000
August	187,000	2,830	184,000
September	184,000	2,310	181,000
October	181,000	--	181,000
November	181,000	2,320	179,000
December	179,000	2,290	177,000
Year	XX	22,100	XX
2000:			
January	177,000	3,970	173,000
February	173,000	2,710	170,000
March	170,000	2,330	168,000
April	168,000	4,280	164,000
January - April	XX	13,300	XX

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 10
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

Material and country	General imports			Imports for consumption		
	2000			2000		
	1999	March	January - March 2/	1999	March	January - March 2/
Ore and concentrate (zinc content):						
Australia	7,540	--	5,290	7,540	--	5,290
Mexico	14,000	231	5,270	13,700	231	5,270
Netherlands	--	1,440	6,580	--	1,440	6,580
Peru	43,700	2,360	3,580	40,600	1,750	1,750
South Africa	12,800	--	--	12,800	--	--
Other	102	268	312	--	--	--
Total	78,100	4,300	21,000	74,600	3,420	18,900
Blocks, pigs, or slab:						
Australia	4,010	15,000	15,000	4,010	15,000	15,000
Brazil	19,700	1,250	3,770	19,700	1,250	3,770
Canada	535,000	50,800	141,000	535,000	50,800	141,000
China	62,500	503	3,110	55,800	503	3,110
Finland	13,300	--	--	13,300	--	--
Kazakhstan	135,000	4,000	11,100	135,000	4,000	11,100
Korea, Republic of	51,700	5,910	14,900	51,700	5,910	14,900
Mexico	95,100	5,660	20,300	95,100	5,660	20,300
Peru	68,500	2,030	12,300	68,500	2,030	12,300
Poland	13,300	--	2,000	13,300	--	2,000
Russia	16,100	751	8,110	16,100	751	8,110
Spain	11,700	--	2,800	11,700	--	2,800
Other	30,200 r/	--	2,790	37,800 r/	--	2,790
Total	1,060,000	85,900	237,000	1,060,000	85,900	237,000
Dross, ashes, fume (zinc content)	20,000	1,170	3,650	20,000	1,170	3,650
Grand total	1,150,000	91,400	262,000	1,150,000	90,500	260,000
Oxide (gross weight):						
Canada	35,800	3,570	10,300	35,800	3,570	10,300
China	1,790	73	319	1,790	73	319
Germany	1,270	163	309	1,270	163	309
Japan	1,150	108	321	1,150	108	321
Mexico	20,700	1,820	5,060	20,700	1,820	5,060
Netherlands	2,660	345	599	2,660	345	599
South Africa	260	160	240	260	160	240
Other	1,530 r/	7	309	1,530 r/	7	309
Total	65,200	6,250	17,400	65,200	6,250	17,400
Other (gross weight):						
Waste and scrap	26,600	3,610	7,710	26,600	3,610	7,710
Sheets	22,600	743	3,140	22,600	743	3,140
Powders, flakes, dust (zinc content)	21,300	2,020	5,750	21,300	2,020	5,750

r/ Revised. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Data for April were not available at time of publication.

Source: Bureau of the Census.